

[illegible]

the parent pattern of the master mask is transferred onto a second substrate under a first condition, and a predetermined phase shift portion is formed on the second substrate, thereby forming the phase-shift mask, and

the parent pattern of the master mask is transferred onto a third substrate under a second condition which is different from the first condition, thereby forming the correction exposure mask.

2. A producing method of a mask as recited in claim 1, characterized in that the second condition is a condition wherein an amount of exposure is smaller than that in the first condition.

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under the first condition, the parent pattern of the master mask is transferred onto the second substrate through a projection optical system having a predetermined resolution, and

under the second condition, the parent pattern of the master mask is transferred onto the third substrate through a projection optical system having a resolution lower than that of the projection optical system.

4. A producing method of a mask as recited in claim 3, characterized in that

the numerical aperture of the projection optical system used under the second condition is set smaller than the numerical aperture of the projection optical system used under the first condition.

5. A producing method of a mask as recited in claim 1, characterized in that under the second condition, the third substrate is defocused with respect to an image plane of the projection optical system.

6. A producing method of a mask as recited in any one of claims 1 to 5, characterized in that the parent pattern is divided into the plural number to form a plurality of master

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masks, and patterns of the plurality of the master masks are transferred while stitching screens, thereby forming patterns respectively corresponding to the parent pattern on the second and third substrates.

7. A producing method of a mask for producing a correction exposure mask used when a transmission image of a pattern of a predetermined phase-shift mask is corrected by superimposing exposure, characterized in that

a parent pattern is formed on a first substrate to produce a master mask,

the parent pattern of the master mask is transferred onto a second substrate under a condition different from a condition under which a light shield pattern of the phase-shift mask is formed, thereby forming the correction exposure mask.

8. A producing method of a mask as recited in claim 7, characterized in that the condition includes at least one of an exposure amount, a resolution, and focus.

9. A producing apparatus of a mask for producing a plurality kinds of masks different from one another, characterized by comprising:

a mask stage which holds a master mask on which a parent pattern is formed;

a substrate stage which sequentially holds and positions a plurality of mask substrates for the masks,

an illumination optical system which illuminates the master masks on the mask stage,

a projection optical system which transfers an image of the parent pattern of the master mask onto the mask substrate on the substrate stage, and

a control system which adjusts at least one of an exposure amount with respect to the mask substrate and a resolution of the projection optical system in accordance with kinds of the mask to be produced.

10. A producing method of a predetermined device, characterized by comprising:

a first step of drawing a parent pattern corresponding to a pattern of a predetermined layer of the device onto one or a plurality of first substrates to form a master mask,

a second step of transferring the parent pattern of the master mask onto a second substrate under a first condition and forming a predetermined phase-shift portion on the second substrate, thereby forming a phase-shift mask,

a third step of transferring the parent pattern of the

master mask onto a third substrate under a second condition which is different from the first condition, thereby forming a correction exposure mask, and

a fourth step of exposing in a superimposing manner the pattern of the phase-shift mask and the pattern of the correction exposure mask on a fourth substrate.

11. A photomask, characterized by being produced using the mask producing method as recited in any one of claims 1 to 5, 7 and 8.

12. A producing method of a device, characterized by including a step of transferring a device pattern onto a device substrate using the mask as recited in claim 11.

13. A photomask, characterized by being produced using the mask producing apparatus as recited in claim 9.